

Serial No.: 09/843,909
Atty. Docket No.: P66616US0

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A cancellation system for echo or crosstalk noise in a communications transceiver for a plurality of channels, the system comprising:

a channel circuit ~~comprising~~ including taps for each channel and means for training the taps by setting coefficient values, the taps being arranged in at least one block having a fixed number of taps;
~~characterised in that:~~

at least some of the channel circuits ~~(11(a)-11(d))~~ each ~~comprise~~ having insufficient taps for a full span;

each of said channel circuits further ~~comprises~~ including a variable delay line ~~(vdl)~~ connected in series with the taps; and

the training means ~~comprises~~ including means for ~~setting~~ determining an optimum position for each tap block to set the length of each variable delay line so that positions of the taps are optimised.

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2. (Currently Amended) A The cancellation system as claimed in claim 1, wherein the training means ~~comprises means for sharing~~ is configured to share taps from another channel circuit when training each channel circuit in order to achieve a full span for each channel during training.

3. (Currently Amended) A The cancellation system as claimed in claim 1, wherein each channel circuit ~~comprises~~ includes a plurality of variable delay lines ~~(n_vdl, f_vdl)~~ separated by taps.

4. (Canceled).

5. (Canceled).

6. (Currently Amended) A The cancellation system as claimed in claim 5 1, wherein the training means ~~comprisess means for determining~~ is configured to determine a coefficient sum for each of a plurality of candidate windows, and choosing the window providing the maximum coefficient sum.

7. (Currently Amended) A The cancellation system as claimed in claim 5 1, wherein the training means ~~comprises means for~~

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~~determining~~ is configured to determine an optimum position for each block subject to pre-set constraints.

8. (Currently Amended) ~~A~~ The cancellation system as claimed in claim 7, wherein a constraint is a maximum length for the variable delay line.

9. (Currently Amended) ~~A~~ The cancellation system as claimed in claim 7, wherein a constraint is that tap blocks do not overlap.

10. (Currently Amended) ~~A~~ The cancellation system as claimed in claim 1, wherein each channel circuit ~~comprises~~ includes, in series, [[:]] a near variable delay line, a near tap block, a far variable delay line, and a far tap block.

11. (Currently Amended) ~~A~~ The cancellation system as claimed in claim 1, wherein each variable delay line ~~comprises~~ has cascaded register blocks linked by multiplexers including ~~comprising~~ means for bypassing a register block or feeding data through said register block ~~it~~ according to training control signals setting a delay length.

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12. (Currently Amended) A The cancellation system as claimed in claim 1, wherein the training means ~~comprises~~ includes an adaptation module for at least one tap block.

13. (Currently Amended) A The cancellation system as claimed in claim 12, wherein at least some adaptation modules ~~comprise~~ include means for training two or more tap blocks.

14. (Currently Amended) A cancellation system for echo or crosstalk noise in a communication transceiver for a plurality of channels, the system comprising:

a channel circuit ~~comprising~~ including taps for each channel and means for training the taps by setting coefficient values; ~~characterised in that:~~

at least some of the channel circuits ~~(11(a)-11(d))~~ each having ~~comprise~~ insufficient taps for a full span;

each of said channel circuits further ~~comprises~~ including a variable delay line ~~(vdl)~~ connected in series with the taps; and

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the training means ~~comprises~~ including means for sharing taps from another channel circuit when training each channel circuit in order to achieve a full span for each channel during training, ~~and~~

~~the training means comprises means for determining an optimum position for each tap block to set the length of the variable delay line, said means comprising means for determining a coefficient sum for each of a plurality of candidate windows, and choosing the window providing the maximum coefficient sum.~~

15. (New) The cancellation system as claimed in claim 14, wherein the training means further includes means for determining an optimum position for each tap block to set the length of the variable delay line.

16. (New) The cancellation system as claimed in claim 15, wherein the means for determining includes means for determining a coefficient sum for each of a plurality of candidate windows, and choosing the window providing the maximum coefficient sum.

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17. (New) The cancellation system as claimed in claim 15, wherein the training means includes means for determining an optimum position for each block subject to pre-set constraints.

18. (New) The cancellation system as claimed in claim 17, wherein a constraint is a maximum length for the variable delay line.

19. (New) The cancellation system as claimed in claim 17, wherein a constraint is that tap blocks do not overlap.

20. (New) A cancellation system for echo or crosstalk noise in a communications transceiver for a plurality of channels, the system comprising:

a channel circuit having taps for each channel and a tap coefficient training circuit for training the taps by setting coefficient values, each channel circuit including, in series, a near variable delay line, a near tap block, a far variable delay line, and a far tap block;

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at least some of the channel circuits each having insufficient taps for a full span; and

the tap coefficient training circuit being configured to set a length of each variable delay line so that positions of the taps are optimised.

21. (New) A cancellation system for echo or crosstalk noise in a communications transceiver for a plurality of channels, the system comprising:

a channel circuit having taps for each channel and a tap coefficient training circuit for training the taps by setting coefficient values, each channel circuit including, in series, a near variable delay line, a near tap block, a far variable delay line, and a far tap block;

at least some of the channel circuits each having insufficient taps for a full span;

each of said channel circuits further including a variable delay line connected in series with the taps;

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the tap coefficient training circuit being configured to set a length of each variable delay line so that positions of the taps are optimised; and

each variable delay line having cascaded register blocks linked by multiplexers including means for bypassing a register block or feeding data through said register block according to training signals setting a delay length.